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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,245	03/31/2004	Stephen R. Dunne	107213	8147

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EXAMINER

SPITZER, ROBERT H

ART UNIT PAPER NUMBER

1724

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,245

Applicant(s)

DUNNE ET AL.

Examiner

Robert H. Spitzer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/31/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. The drawing figures are objected to because on Fig. 6, the arrow-head on number "54" is in the wrong direction, as it should show the regeneration gas leaving the adsorber sector.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-23 and 44-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is indefinite because in line 13, there is no direct antecedent basis for the recitation of "said adsorption portion". Claims 3,4 and 7 are indefinite because there is no direct antecedent basis for the recitation of "said regenerating gas flow". Claims 5,6 and 8 are indefinite because there is no direct antecedent basis for the recitation of "said cooling gas flow". Claim 7 is further indefinite because it recites "a regenerating gas" without any correlation to "a regenerating gas stream" recited in claim 1. Claim 8 is further indefinite because it recites "a cooling gas" without any correlation to "a cooling stream" recited in claim 1. Claim 9 is indefinite because there is no direct antecedent basis for the recitations of "said cooling gas flow" and "said regenerating gas flow". Claim 13 is indefinite because there is no direct antecedent basis for the recitations of "said compression" and "said regenerating gas flow". Claim 16 is indefinite because in line 14, there is no direct antecedent basis for the recitation of "said adsorption portion". Claims 17 and 18 are indefinite because there is no direct antecedent basis for the recitation of "said dried gas stream", as there is no

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previous use of the word "stream". Claim 20 is indefinite because there is no direct antecedent basis for the recitation of "said regenerating gas flow". Claims 21 and 22 are indefinite because there is no direct antecedent basis for the recitation of "said cooling gas flow". Claim 44 is indefinite because in line 6, there is no direct antecedent basis for the recitation of "said second sector". Claims 46 and 47 are indefinite because there is no direct antecedent basis for the recitation of "said regenerating gas flow". Claim 48 is indefinite because there is no direct antecedent basis for the recitation of "said compressed gas". Claim 53 is indefinite because there is no direct antecedent basis for the recitation of "said compressed gas". Claim 2, 10-12, 14, 15, 19, 23, 45, 49-52, 54 and 55 are indefinite because they depend from the above indefinite claims.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 9-13, 43-45 and 47-54 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by both the structure of the rotary adsorber device and its process of operation as shown by Izumo (4,946,479).

6. Claims 16-20, 22 and 23 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the rotary adsorber device shown by Macriss et al. (4,012,206).

7. Claims 24-30, 32-34, 36 and 37 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the disclosure of Onitsuka et al. (5,158,582).

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8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3,5 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Mestemaker et al. (5,628,819). The claims differ from the disclosure of Izumo ('479) in the flow of regenerating gas being cocurrent to the flow of the feed gas stream. Mestemaker et al. ('819) show that regenerating gas for an adsorber can be passed through such adsorber in the same direction (cocurrent) as a feed gas stream. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to pass the regenerating gas of Izumo ('479) through the adsorber in the cocurrent direction, in view of such showing by Mestemaker et al. ('819), as such direction will allow a different amount of adsorbed component to be removed.

10. Claims 7,8,14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Macriss et al. (4,012,206). The claims differ from the disclosure of Izumo ('479) in the regenerating and cooling gas streams being a portion of the purified gas stream which has been purified by the adsorber material. Macriss et al. ('206) show that for regeneration of an adsorber, both the regenerating gas and the cooling gas streams can be obtained from the purified gas stream which has passed through the adsorber. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize a portion of the purified gas stream to supply either or both of the regenerating gas stream and the cooling gas stream in the

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adsorbers of Izumo ('479), in view of the showing of Macriss et al. ('206), provided that there is ample purified gas to be able to use a portion thereof for such purpose.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macriss et al. (4,012,206) in view of Mestemaker et al. (5,628,819). The claims differs from the disclosure of Macriss et al. (206) in the direction of flow of the regenerating gas being cocurrent to the feed gas direction. Mestemaker et al. ('819) show that regenerating gas for an adsorber can be passed through such adsorber in the same direction (cocurrent) as a feed gas stream. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to pass the regenerating gas of Macriss et al. ('206) through the adsorber in the cocurrent direction, in view of such showing by Mestemaker et al. ('819), as such direction will allow a different amount of adsorbed component to be removed.

12. Claims 31,35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Suzuki et al. (2001/0009124). The claims differ from the disclosure of Onitsuka et al. ('582) in there being a third rotary adsorber. Suzuki et al. (2001/0009124) show that a rotary adsorber device can include multiple adsorbers, with up to four being shown. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of Onitsuka et al. ('582) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

13. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Izumo (4,946,479). The claim differs from the disclosure of

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Onitsuka et al. ('582) in the purified gas stream being further compressed. Izumo ('479) show such compression of the purified gas stream at "11". It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorber device of Onitsuka et al. ('582) with a compressor for the purified gas stream, in view of the showing of Izumo ('479), so that any downstream component that needs gas at an elevated pressure can have such gas send thereto.

14. Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Izumo (4,946,479), as applied in the paragraph directly above, further in view of Suzuki et al. (2001/0009124), who applies as in paragraph number 12 above. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of Onitsuka et al. ('582) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

15. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Suzuki et al. (2001/0009124), who apply as in paragraph number 12 above. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of Izumo ('479) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

16. The remaining references listed on both the PTO-892 and the PTO-1449 show art of interest.

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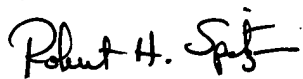
17. Applicants' response to this Office action should also include the following editorial changes: para. [0009], line 3, "opposition" should be "opposite"; para. [0018], line 1, "as" should be deleted; para. [0027], lines 6 and 7, "said the" should be either "said" or "the"; para. [0058], line 10, "heated" should be "cooled"; and, para. [0072], line 2, "airs" should be "air".

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (571) 272-1167. The examiner can normally be reached on Monday-Thursday from (5:30AM-4:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 13, 2005


Robert H. Spitzer
Primary Examiner
Art Unit 1724

June 13, 2005